

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-26 (Canceled).

Claim 27 (New): A repeater device that receives from a first repeater device, which is adjacent to the repeater device on a network, a signature for controlling passage of a packet through the repeater device and sends received signature to a second repeater device, which is adjacent to the repeater device on the network, wherein the repeater device determines whether to send the received signature to the second repeater device based on contents of the received signature; and sends the received signature to the second repeater device when determining that the received signature is to be sent to the second repeater device.

Claim 28 (New): The repeater device according to claim 27, further comprising: an attack determining unit that determines whether a packet passing through the repeater device satisfies a condition specified in the received signature to thereby determine whether there is an attack on the repeater device; and a signature sending unit that sends the received signature to the second repeater device upon the attack determining unit determining that there is an attack on the repeater device.

Claim 29 (New): The repeater device according to claim 28, wherein the attack determining unit includes a packet-number determining unit that determines whether number of packets that satisfy the condition within a unit time exceeds a predetermined packet threshold, and

the signature sending unit sends the received signature to the second repeater device upon the packet-number determining unit determining that the number of packets exceeds the predetermined packet threshold.

Claim 30 (New): The repeater device according to claim 29, wherein upon the packet-number determining unit determining that the number of packets exceeds the predetermined threshold, the attack determining unit further includes a continuous-exceeding number determining unit that determines whether number of times that the predetermined threshold is continuously exceeded exceeds a predetermined number threshold, and

the signature sending unit sends the received signature to the second repeater device upon the continuous-exceeding number determining unit determining that the number of times exceeds the predetermined number threshold.

Claim 31 (New): The repeater device according to claim 28, wherein a plurality of the second repeater devices are present in network and the signature sending unit sends the received signature to all the second repeater devices.

Claim 32 (New): The repeater device according to claim 27, further comprising:
a storage unit to store therein data;
a signature-registration determining unit that determines whether a matching signature that is substantially similar to the received signature is already present in the storage unit; and
a signature communicating unit that registers the received signature in the storage unit upon the signature-registration determining unit determining that a matching signature is not present in the storage unit, and sends the received signature to the second repeater device.

Claim 33 (New): The repeater device according to claim 32, wherein the signature-registration determining unit determines, upon determining that the matching signature is present in the storage unit, whether generation identification information is present in the storage unit in association with the matching signature, and the signature communicating unit registers the received generation identification information in the storage unit in association with the matching signature, upon the signature-registration determining unit determining that generation identification information is not present in the storage unit in association with the matching signature, and sends the received signature and the received generation identification information to the second repeater device.

Claim 34 (New): The repeater device according to claim 33, further comprising:
a suspicious attacking-packet determining unit that determines that a packet passing through the repeater device is a suspicious attacking packet when the packet satisfies a condition specified in the received signature;
a signature generating unit that generates, upon the suspicious attacking-packet determining unit determining presence of a suspicious attacking packet, a signature and generation identification information corresponding to generated signature, and sends generated signature and generated generation identification information to the second repeater device, and registers relay destination information for identifying the second repeater device that is a relay destination of the generated signature and generated generation identification information, the generated signature, and the generated generation identification information in correspondence with each other in the storage unit.

Claim 35 (New): The repeater device according to claim 34, wherein

upon the signature-registration determining unit determining that the received signature and the received generation identification information is not present in the storage unit, the signature communicating unit sends the received signature and the received generation identification information to the second repeater device, and registers relay source information for identifying the first repeater device that is an immediately preceding relay source of the signature, relay destination information for identifying the second repeater device that is the relay destination of the signature and the generation identification information, the received signature, and the received generation identification information in correspondence with each other in the storage unit,

the signature-registration determining unit further determines, upon determining that the generation identification information corresponding to the received signature is present in the storage unit, whether relay source information present in association with the generation identification information is same as relay source information corresponding to the received signature, and

upon the signature-registration determining unit determining that the generation identification information is present in the storage unit but the relay source information corresponding to the received signature is same as registered relay source information, the signature communicating unit updates the signature present in the storage unit with the received signature, and sends the received signature to the second repeater device that is identified as the relay destination from the relay destination information present in the storage unit.

Claim 36 (New): The repeater device according to claim 35, wherein the signature communicating unit sends, upon the signature-registration determining unit determining that the relay source information corresponding to the received signature is

different from the relay source information of the registered signature, a notification indicating that the signature is already present in the storage unit to the first repeater device that is the relay source, and

deletes, when a notification is received from the second repeater device, relay destination information corresponding to the second repeater device from the relay destination information stored in the storage unit.

Claim 37 (New): A network attack protection system including a plurality of repeater devices on a network, a repeater device from among the repeater devices receives from a first repeater device, which is adjacent to the repeater device on the network, a signature for controlling passage of a packet through the repeater device and sends received signature to a second repeater device, which is adjacent to the repeater device on the network, wherein the repeater device includes

an attack determining unit that determines whether a packet passing through the repeater device satisfies a condition specified in the received signature to thereby determine whether there is an attack on the repeater device; and

a signature sending unit that sends the received signature to the second repeater device upon the attack determining unit determining that there is an attack on the repeater device.

Claim 38 (New): The network attack protection system according to claim 37, where the repeater device further includes

a storage unit to store therein data;

a signature-registration determining unit that determines whether a matching signature that is substantially similar to the received signature is already present in the storage unit; and

a signature communicating unit that registers the received signature in the storage unit upon the signature-registration determining unit determining that a matching signature is not present in the storage unit, and sends the received signature to the second repeater device.

Claim 39 (New): A relaying method performed by a repeater device from among a plurality of repeater devices on a network, the relaying method comprising:

receiving from a first repeater device, which is adjacent to the repeater device on the network, a signature for controlling passage of a packet through the repeater device;

determining whether a packet passing through the repeater device satisfies a condition specified in the signature received at the receiving to thereby determine whether there is an attack on the repeater device; and

sending the signature received at the receiving to the second repeater device upon it is determined at the determining that there is an attack on the repeater device.

Claim 40 (New): The relaying method according to claim 39, wherein the determining includes determining whether number of packets that satisfy the condition within a unit time exceeds a predetermined packet threshold, and

the sending includes sending the signature received at the receiving to the second repeater device upon it is determined at the determining that the number of packets exceeds the predetermined packet threshold.

Claim 41 (New): The relaying method according to claim 40, wherein the determining includes determining whether number of times that the predetermined threshold is continuously exceeded exceeds a predetermined number threshold, when it is

determined at the determining that the number of packets exceeds the predetermined packet threshold, and

the sending includes sending the signature received at the receiving to the second repeater device when it is determined at the determining that the number of times exceeds the predetermined number threshold.

Claim 42 (New): The relaying method according to claim 39, wherein a plurality of the second repeater devices are present in network and the sending includes sending the signature received at the receiving to all the second repeater devices.

Claim 43 (New): The relaying method according to claim 39, further comprising: checking whether a matching signature that is substantially similar to the received signature is already present in the storage unit; and
registering the signature received at the receiving in the storage unit upon it is determined at the checking that a matching signature is not present in the storage unit, and
the sending includes sending the signature received at the receiving to the second repeater device.

Claim 44 (New): The relaying method according to claim 43, wherein
the receiving includes receiving generation identification information along with the signature from the first repeater device,
the checking includes checking, upon determining that the matching signature is present in the storage unit, whether generation identification information is present in the storage unit in association with the matching signature, and

the registering includes registering the signature and the generation identification information received at the receiving in the storage unit upon it is determined at the checking that generation identification information is not present in the storage unit in association with the matching signature, and

the sending includes sending the signature and the generation identification information received at the receiving to the second repeater device.

Claim 45 (New): The relaying method according to claim 44, further comprising:
detecting that a suspicious attacking packet is passing through the repeater device when a packet satisfies a condition specified in the received signature;
generating, upon detecting a suspicious attacking packet at the detecting, a signature and generation identification information corresponding to generated signature, wherein
the sending includes sending the signature and the generation identification information generated at the generating to the second repeater device, and
the registering includes registering relay destination information for identifying the second repeater device that is a relay destination of the signature and the generation identification information generated at the generating, the signature, and the generation identification information in correspondence with each other in the storage unit.

Claim 46 (New): A computer-readable recording medium that stores therein a computer program that causes a computer to function as a repeater device from among a plurality of repeater devices on a network, the computer program causing the repeater device to execute:

receiving from a first repeater device, which is adjacent to the repeater device on the network, a signature for controlling passage of a packet through the repeater device;

determining whether a packet passing through the repeater device satisfies a condition specified in the signature received at the receiving to thereby determine whether there is an attack on the repeater device; and

sending the signature received at the receiving to the second repeater device upon it is determined at the determining that there is an attack on the repeater device.

Claim 47 (New): The computer-readable recording medium according to claim 46, wherein

the determining includes determining whether number of packets that satisfy the condition within a unit time exceeds a predetermined packet threshold, and

the sending includes sending the signature received at the receiving to the second repeater device upon it is determined at the determining that the number of packets exceeds the predetermined packet threshold.

Claim 48 (New): The computer-readable recording medium according to claim 47, wherein

the determining includes determining whether number of times that the predetermined threshold is continuously exceeded exceeds a predetermined number threshold, when it is determined at the determining that the number of packets exceeds the predetermined packet threshold, and

the sending includes sending the signature received at the receiving to the second repeater device when it is determined at the determining that the number of times exceeds the predetermined number threshold.

Claim 49 (New): The computer-readable recording medium according to claim 46, wherein a plurality of the second repeater devices are present in network and the sending includes sending the signature received at the receiving to all the second repeater devices.

Claim 50 (New): The computer-readable recording medium according to claim 46, wherein the computer program further causes the repeater device to execute:

 checking whether a matching signature that is substantially similar to the received signature is already present in the storage unit; and

 registering the signature received at the receiving in the storage unit upon it is determined at the checking that a matching signature is not present in the storage unit, and
 the sending includes sending the signature received at the receiving to the second repeater device.

Claim 51 (New): The computer-readable recording medium according to claim 50, wherein

 the receiving includes receiving generation identification information along with the signature from the first repeater device,

 the checking includes checking, upon determining that the matching signature is present in the storage unit, whether generation identification information is present in the storage unit in association with the matching signature, and

 the registering includes registering the signature and the generation identification information received at the receiving in the storage unit upon it is determined at the checking that generation identification information is not present in the storage unit in association with the matching signature, and

the sending includes sending the signature and the generation identification information received at the receiving to the second repeater device.

Claim 52 (Original): The computer-readable recording medium according to claim 51, the computer program further causes the repeater device to execute:

detecting that a suspicious attacking packet is passing through the repeater device when a packet satisfies a condition specified in the received signature;

generating, upon detecting a suspicious attacking packet at the detecting, a signature and generation identification information corresponding to generated signature, wherein

the sending includes sending the signature and the generation identification information generated at the generating to the second repeater device, and

the registering includes registering relay destination information for identifying the second repeater device that is a relay destination of the signature and the generation identification information generated at the generating, the signature, and the generation identification information in correspondence with each other in the storage unit.